

Hiring a computing engineer / computing scientist in software development for 3D immersive visualisation

The LATMOS (Laboratoire, Atmosphères, Milieux, Observations Spatiales) is recruiting a one-year computing engineer/computing scientist to develop innovative post processing tools in 3D interactive/immersive visualisation applications in the post-processing stage of numerical results issued from large scale multidimensional simulations in space plasma /astrophysics. The position is starting on October 1st, 2017.

Large scale numerical simulations running on national/international supercomputers centers and producing massive data sets require innovative approaches for analyzing the results. New 3D interactive/immersive visualization High Tech (with tracking) procedures are necessary to “penetrate” and “to interact” with the intricated structures of 3D bodies and to analyze in details multi-scale processes hardly/non accessible by standard diagnosis technics. Such High Tech equipment (named MIRE) has been recently acquired by the Observatory of Versailles Saint Quentin (OVSQ) where LATMOS belongs to. It consists of a graphic cluster connected to a large visualisation immersive wall (6m large x 1.80 m high) composed with 8 Full HD screens of 70” (CADWALL technics) installed in Guyancourt (Saint Quentin en Yvelines, 78). The cluster is composed with:

- A master server
- 7 graphical nodes (processor Intel Xeon 3,2GHz 6 cores, 4x16Gb de RAM, 1 GPU NVIDIA K5000)
- 1 working station

The interactions between the 3D images seen on the wall and the user are performed with 3D glasses (with IR captors) and/or a “flystick” , and/or “joystisk” (also with captors + command buttoms). Other interactions with controllers such as Wiimote, Xbox controller... can be explored.

At present, Paraview is the main interactive 3D visualisation software used on MIRE by researchers in LATMOS and can read several types of data formats (vtk, netcdf, csv, xml, hdf5, jpg, png...). It has been completed by a plugin of virtual reality (stereoscopy) and tracking system. This equipment is already fully operational since a few years; numerical results issued from large simulations are already stored and available on the site. The main goal of the work is the developement/writing of softward tools in Python for applications as Plugs-in in Paraview; these macro-commands have to take advantage of the multi-parallelism of the configuration (f.i. in data reading) in order to get the optimal interactivity with the 3D objects. The candidate will be located in LATMOS (Guyancourt very near Paris, France), co-chaired with researchers of Space Plasma group and with the engineer in charge of the platform MIRE, and in collaboration with Maison de la Simulation (MdS, Saclay, France). Both LATMOS and MdS belong to the University of Paris Saclay.

Duration of the position: 1 full year

Salary: based on CNRS salary grid and depends upon qualification experience

Profile of the candidate:

M2, engineer school or postdoc level.

Good knowledges in interactive/immersive 3D visualization equipments / Virtual Reality or at least interested in new technology.

Required skills:

Software: Paraview

Language : Python (C/C++, XML, VTK should be welcome)

Library: VRPN

Operating System: Linux (CentOS, Fedora, Red Hat)

English: read /spoken

Open to work in strong interaction with the engineer already working on MIRE and with researchers who will be the main users of the macrocommands tools .

It is highly recommended to react **before September 20th**. Interested candidates **are invited to send a CV and a motivation letter** (1 page maximum each) **to both :**

- the scientist in charge of the project (Bertrand Lembège) : bertrand.lembege@latmos.ipsl.fr
- * the head of PIT Department (Jean Luc Maria) at: jean-luc.maria@uvsq.fr

For informations, please visit :

<http://www.latmos.ipsl.fr> for scientific informations (HEPPI department)

<https://my.matterport.com/show/?m=vwTFiszf66x> for informations on the visualisation platform MIRE.